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09/887,273	06/22/2001	Maurice S. Brookhart	CR9608USDIV9	5192

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EXAMINER

RABAGO, ROBERTO

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 10/06/2003

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 12

Application Number: 09/887,273  
Filing Date: June 22, 2001  
Appellant(s): BROOKHART ET AL.

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Gail A. Dalickas  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed September 8, 2003 and the Appendix to the Appeal Brief filed September 24, 2003.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

Appellant's brief includes a statement that claims stand or fall together.

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

No prior art is relied upon by the examiner in the rejection of the claims under appeal.

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**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

5. Claims 563-574 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for nickel and palladium complexes comprising a diimine ligand, does not reasonably provide enablement for methods including any catalyst formulation within the scope of "transition metal containing coordination polymerization catalyst". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The Federal Circuit has held that "the specification must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation'." *In re Wright*, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). In the instant case, the claims include the use of any transition metal coordination catalyst, yet the specification includes no teaching that the claimed process could be performed with any catalyst other than one comprising nickel or palladium and a diimine coordinating ligand. The feature which distinguishes these claims over the teachings of the prior art is the making of a specifically branched polymer from monomers which the prior art has not recognized as being capable of rendering such a polymer, and one of ordinary skill in the art would not be able to successfully use catalysts within the full claimed scope to obtain such an unusual branching pattern from the specified monomers without undue experimentation.

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Further regarding enablement, the court has stated that "the specification must teach those of skill in the art 'how to make and use the invention as broadly as it is claimed' " *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993). In the instant case, at least as regards the scope of the catalysts, the teachings of the specification are clearly not as broad as the claims. This fact is highlighted by the implicit requirement that the catalyst of the method must provide a mechanism for polymer assembly which is contrary to the teachings of the art. Citing applicant's specification at pg. 98, the paragraph at line 30 begins: "Under certain polymerization conditions, some of the polymerization catalysts described herein produce polymers whose structure is unusual, especially considering from what compounds (monomers) the polymers were made", and the paragraph concludes with: "This is highly unusual, particularly for polymerizations employing transition metal coordination catalysts." The subsequent paragraph describes in some detail the nature of the unusual branching, and the passage indicates that the branching structure observed when using the disclosed catalysts is significantly different from that which would be expected in "normal" polymerizations. Clearly, applicants themselves have recognized that the unique features of the polymer specified in the claims arise primarily from the behavior of the catalyst, and such performance features are at odds with what those of ordinary skill in the art would expect when using other catalysts within the claimed scope. The question then becomes whether the specification enables those of ordinary skill in how to use the claimed process of making polymers with unusual branching patterns using catalysts which are within the broad scope of the claims, but which were not disclosed

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in the specification, without undue experimentation. Given the unpredictability of the catalytic art, such a determination, involving the selection and/or design and synthesis of transition metal catalysts, as well as the determination of polymerization conditions suitable to obtain the required polymer, amounts to original research.

**(11) *Response to Argument***

Appellants argue at page 3, last paragraph, that "certain polymerization conditions", apparently pressure and temperature, are responsible for unusual branching patterns of the resultant polymers. If appellants are contending that the mere adjustment of temperature and pressure results in the polymers required in the claims, it should be noted that the specification discloses nothing regarding temperature and pressure conditions other than those which have been conventional in the art for decades. Over said decades, the art has not been able to obtain the polymer required in the claims. Furthermore, the passage cited by appellants specifically discusses only Ni and Pd catalysts.

At page 4, last paragraph, appellants continue to rely on Examples 430-438 in spite of the fact that these examples are not within the scope of the claims. Examples 433-438 fail to report the required "at least 50 branches per 1000 methylene groups", and all of the cited examples fail to report the required "at least two branches of different lengths containing less than six carbon atoms each".

At pages 5-6, appellants argue that undue experimentation would not be required to practice the claimed invention, and further assert that "if the Wands factors are applied to the present specification, the specification clearly provides, in a manner readily understood by one skilled in the art of polymerization using transition metal catalysts, guidance on how to carry out the claimed process." Accordingly, an analysis in view of *In re Wands* is in order. The following is directed only to the scope of the claimed process for which enablement has been deemed lacking, i.e., catalysts other than nickel and palladium complexes comprising a diimine ligand. Criteria for determining undue experimentation are as follows: (*In re Wands*, 8 USPQ2d 1400 (Fed. Cir. 1988)).

(1) the breadth of the claims: in the claimed process, the breadth of the catalyst includes all transition metal coordination catalysts, yet the breadth of the required polymer is limited to one which the art has not previously known to be obtainable from the required monomers.

(2) the amount of direction or guidance presented, and the presence of working examples: as regards designing, selecting or obtaining a suitable catalyst other than a nickel or palladium complex comprising a diimine ligand, there is none. The specification provides no disclosure that any other catalysts could make the required polymer, and provides no guidelines for the design, selection or obtaining of alternative catalysts which could make the required polymer. The only teachings which appellants have identified as being responsible for the unusual branching pattern are the influences of temperature and pressure on branching patterns. However, as previously

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identified, the temperature and pressure ranges disclosed are conventional, yet the prior art has failed to obtain the required polymer. Clearly, the discussion of these parameters is wholly insufficient in providing reasonable direction to the ordinary skilled worker attempting to practice the full scope of the claimed process.

(3) the state and predictability of the art: the catalytic art is exceedingly unpredictable, and the record contains no evidence that any of the claimed branching properties could be predicted *a priori* from the specifics of either a catalyst structure or any other method condition. Further, the specification has not even attempted to make any clear predictions or suggestions for alternative catalysts which may possibly make the required polymer.

(4) the nature of the invention and the relative skill of those in the art: in catalytic polymerization, the ordinary level of skill is high.

(5) the quantity of experimentation necessary: the experimentation would involve the selection and/or the design and synthesis of alternative catalysts, as well as the identification of method conditions, for obtaining a polymer with the claimed branching. In view of (1) through (3), such experimentation, equivalent to original research, is deemed to be undue, even considering the high level of skill in the art.

Appellants argue at page 7 that the unexpected nature of the resultant polymer contributes to the patentability of the claimed invention. With respect to patentability over the prior art, this position is accepted. In general, a reference which describes a product which appears to inherently contain a claimed physical property may be applied against the claims even if the reference authors have not specifically measured the



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property. In this case, no such rejection under 35 USC 102 was made because the art has demonstrated that there is no basis to conclude that the claimed branching pattern has been obtained in methods using prior-art catalysts. Further, no rejection under 35 USC 103 was made because there can be no basis for motivation to use a process of making a polymer which did not appear to be possible using prior-art catalysts.

However, the issue in this appeal is not patentability over prior art, but rather patentability in view of 35 USC 112, first paragraph (scope of enablement). Appellants' apparent implication that the unexpected nature of the resultant polymer contributes to enablement is not accepted because the mere observation that the polymer is unusual adds nothing to teaching the ordinary skilled worker how to obtain it.

Finally, appellants argue that they are entitled to broad claims in view of the "pioneering" nature of their invention, and cite several publications as evidence thereof. However, a review of the cited documents reveals that the authors discuss any "pioneering" work as relating to a scope of catalysts which is substantially narrower than that set forth in the instant claims. In each of the four references, the discussion is limited to catalysts comprising "Late-Metal Catalysts" (Chem. Rev. (2000)), "palladium- and nickel-based complexes" (C&E News (1996)), "late-transition-metal complexes" (C&E News (2000)) and "sterically hindered late-transition-metal catalysts" (C&E News (1997)). None includes any specific disclosure relevant to the claimed process other than nickel and palladium complexes of imines and diimines. While those "watching the art" may have recognized that appellants' work has made a contribution, appellants'

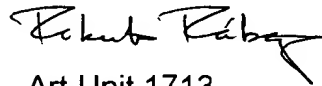
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perception of the scope of that contribution (as shown by the scope of the claims) is substantially greater than that appreciated by reviewers in the art.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

ROBERTO RABAGO  
PATENT EXAMINER

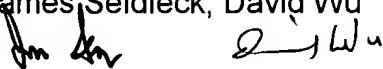


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RR  
September 26, 2003

Conferees

James Seidleck, David Wu



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